PART NO. TTJBA-EN-00

HITACHI

Reliable solutions

Technical Manual
Troubleshooting

ZX
670LC-5B
670LCH-5B
670LCR-5B
Hydraulic Excavator

Service Manual consists of the following separate Part No.

Technical Manual (Operational Principle)	: Vol. No.TOJBA-EN
Technical Manual (Troubleshooting)	: Vol. No.TTJBA-EN
Workshop Manual	: Vol. No.WJBA-EN
Engine Manual	: Vol. No.ETJBA-EN, EWJBA-EN

MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Troubleshooting Technical Service Manual | Publication TTJBA-EN-00

Order the manual at mid-west-tech.com >

SECTION 4

OPERATIONAL PERFORMANCE TEST

CONTENTS

Group 1 Introduction
Operational Performance Tests T4-1-1
Preparation for Performance Tests T4-1-2

Group 2 Standard
Operational Performance Standard Table T4-2-1
Main Pump P-Q Diagram T4-2-5
Radiator Fan Pump P-Q Diagram T4-2-6
Radiator Fan Pump I-Q Diagram T4-2-7
Oil Cooler Fan Valve I-P Diagram T4-2-8
MPDr. Monitor Indicating Values (MC) T4-2-9
MPDr. Monitor Indicating Values (ECM) T4-2-15
Sensor Activating Range T4-2-16

Group 3 Engine Test
Engine Speed T4-3-1
Lubricant Consumption T4-3-4

Group 4 Machine Performance Test
Travel Speed T4-4-1
Mistrack Check T4-4-3
Travel Motor Leakage T4-4-4
Swing Speed T4-4-5
Swing Function Drift Check T4-4-6
Swing Motor Leakage T4-4-7
Maximum Swingable Slant Angle T4-4-8
Swing Bearing Play T4-4-10
Hydraulic Cylinder Cycle Time T4-4-12
Dig Function Drift Check T4-4-14
Control Lever Operating Force T4-4-15
Control Lever Stroke T4-4-16
Boom Raise/Swing Combined Operation Check T4-4-17

Group 5 Component Test
Primary Pilot Pressure T4-5-1
Secondary Pilot Pressure T4-5-3
4-Spool Solenoid Valve Set Pressure T4-5-4
2-Spool Solenoid Valve Set Pressure T4-5-5
Main Pump Delivery Pressure T4-5-7
Radiator Fan Pump Delivery Pressure T4-5-8
Main Relief Valve Set Pressure T4-5-9
Overload Relief Valve Set Pressure T4-5-15
Main Pump Flow Rate Measurement T4-5-20
Radiator Fan Pump Flow Rate Measurement T4-5-26
Swing Motor Drainage T4-5-38
Travel Motor Drainage T4-5-40

Group 6 Adjustment
Pump Learning T4-6-1
Torque Adjustment T4-6-2
Connection T4-6-3
Measuring Method of No-Load-Max Differential Pressure T4-6-4
Muffler Filter Differential Pressure Sensor Learning T4-6-6
Rewrite of Muffler Filter Serial No. T4-6-7
Maintenance of Muffler Filter T4-6-8

MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Trouble... Order the manual at mid-west-tech.com >

Dig Function Drift Check

Summary:

Measure dig function drift, which can be caused by oil leakage in the control valve and boom, arm, and bucket cylinders, with the loaded bucket.

NOTE: When testing the dig function drift just after cylinder replacement, slowly operate each cylinder to its stroke end to release air.

Preparation:

1. Load bucket fully. In lieu of loading the bucket, weight (W) of the following specification can be used.

   W=3600 kg (7940 lb)

2. Position the front attachment as follows:

   With the arm cylinder fully retracted and the bucket cylinder fully extended.

3. With the arm rolled out and the bucket rolled in, hold the bucket so that the height of the bucket pin is the same as the boom foot pin.

4. Maintain the hydraulic oil temperature at 50±5 °C (122±9 °F).

Measurement:

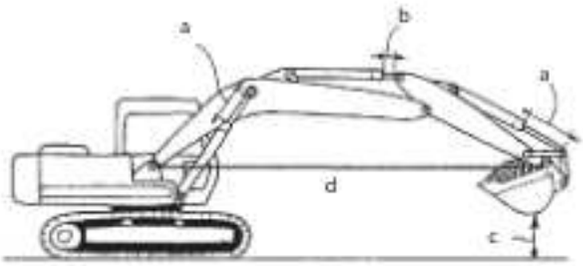
1. Stop the engine.
2. Five minutes after the engine has been stopped, measure the change in the position of the bottom of the bucket, as well as the boom, arm and bucket cylinders.
3. Perform the measurement three times and calculate the average values.

Evaluation:

Refer to the Operational Performance Standard.

Remedy:

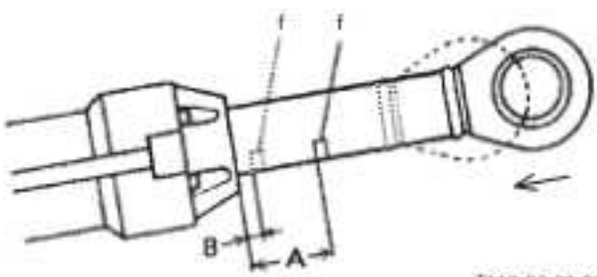
Refer to the Troubleshooting B.



T105-06-03-021

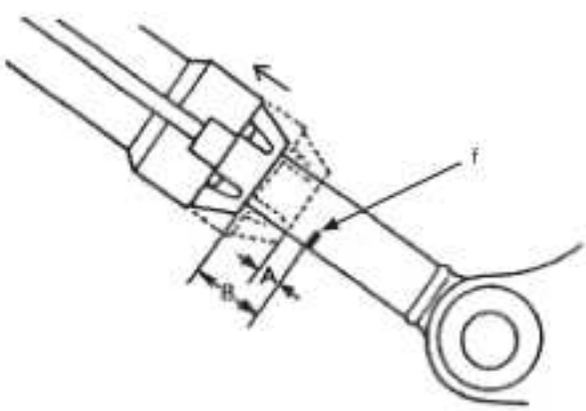
a - Retraced Distance
b - Extended Distance
c - Bucket Bottom
d - Same Height

e



T110-06-03-002

g



T110-06-03-001

e - Boom and Bucket Cylinder Retraction
f - Mark
g - Arm Cylinder Extension

MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Trouble... Order the manual at mid-west-tech.com >

Fault Code	Trouble	Cause	Symptoms in Machine Operation When Trouble Occurs	Remedy
11974-2	Engine Torque Not Learn	Faulty harness Engine torque: Not learn	-	Check the harness Perform engine torque learning
11975-2	Engine Torque Learning Failure	Faulty harness Learning conditions end up in failure Learning Time Out	-	Check the harness Perform engine torque re-learning
11978-3	Auxiliary 2 Analog Input Circuit High Input (Option)	Voltage: more than 4.75 V	-	Check the harness
11978-4	Auxiliary 2 Analog Input Circuit Low Input (Option)	Voltage: less than 0.1 V	-	Check the harness
11979-3	Auxiliary 1 Analog Input Circuit High Input (Option)	Voltage: more than 4.75 V	-	Check the harness
11979-4	Auxiliary 1 Analog Input Circuit Low Input (Option)	Voltage: less than 0.1 V	-	Check the harness

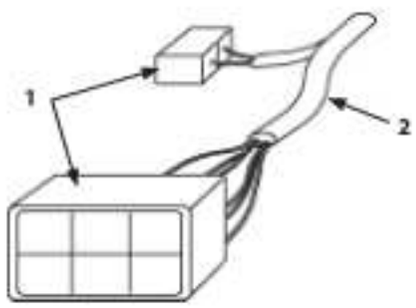
MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Trouble... Order the manual at mid-west-tech.com >

Troubleshooting B (Machine Diagnosis by Using Troubleshooting Symptom) Procedure

Refer to troubleshooting B procedures for diagnosis by using trouble symptom when no fault codes are displayed.

- Diagnosis Procedure
  - The diagnosis procedures for the displayed fault codes are explained in this group.
  - Perform diagnosis by using MPDr. or the service menu of monitor first.
  - In case any fault code has not been displayed by diagnosis, perform inspection according to the procedures when diagnosing.
  - When the fault code is displayed, refer to the troubleshooting A group and diagnose.
  - On the front section pages of this group, there are the tables indicating the relationship between machine trouble symptoms and related parts which may cause such trouble if failed. Start the troubleshooting with more probable causes selected by referring to these tables.

NOTE: Harness end connector viewed from the open end side by the all connectors image shown in this section.



T6L4-05-03-001

1- Harness End Connector 2- Harness

MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Trouble... Order the manual at mid-west-tech.com >

Rewrite of Muffler Filter Serial No.

When the muffler filter has been replaced, rewrite the serial No. of muffler filter and upload the data to e-Service.

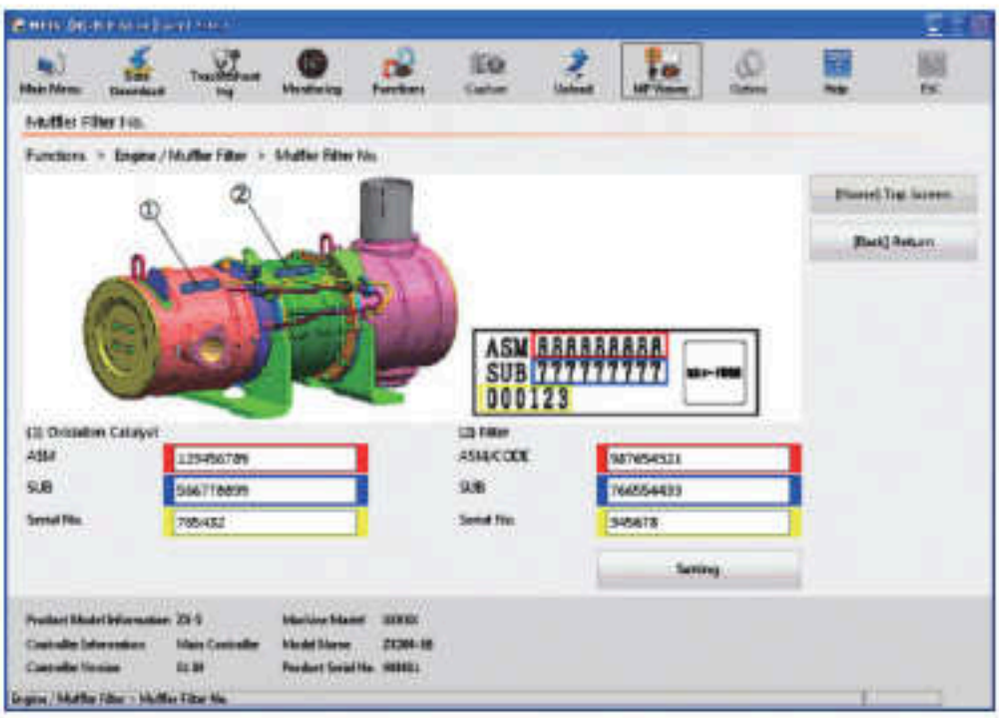
1. Connect MPDr..
2. Set the key switch to the ON position.
3. Select Functions-Engine/Muffler Filter-Muffler Filter NO. with MPDr..
4. Input the following items of Oxidation Catalyst (DOC) and Filter (CSF).

- ASM
- SUB
- Serial No.

5. After inputting, select Setting.

IMPORTANT: After inputting Muffler Filter Serial No. is completed, upload the data to e-Service.

NOTE: When the input data is uploaded to e-Service, the M-Find product specification and history will be updated.



MidWestTech | Hitachi ZX670LC-5B, ZX670LCH-5B, ZX670LCR-5B Excavator Trouble... Order the manual at mid-west-tech.com >